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10/711,789	10/05/2004	Kun-Yi Chan	MTKP0178USA	5788

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EXAMINER	
WYATT, KEVIN S	

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/711,789	CHAN ET AL.	
	Examiner	Art Unit	
	Kevin Wyatt	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 05 October 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 1105.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4-6, 14-18, 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hawryluk (U.S. Patent No. 6,303,917 B1).

Regarding claim 1, Hawryluk shows in Fig. 3, A light emitting device calibration system comprising: a device under test (combination of radiant energy source (11), processing unit (22)) including a light emitting device to be calibrated (11, i.e., source); and a first microprocessor (combination of processor (26), and A/D converter (31)) electrically coupled to the light emitting device for determining a calibration mode controlling power of the light emitting device by changing values of a drive signal to the light emitting device (col. 9, lines 4-6), receiving a power indication corresponding to light emitted by the light emitting device (col. 9, lines 6-8), and determining a power relationship relating values of the drive signal to powers of the light emitting device according to a power indication for each of a plurality of values of the drive signal (col. 9, lines 8-10); and a light detector (19, i.e., energy sensor) coupled to the device under test for detecting the light emitted by the light emitting device to generate the power indication corresponding to the light emitted by the light emitting device (col. 6, lines 35-

37).

Regarding claim 2, Hawryluk shows in Fig. 3 a non-volatile memory (27, i.e., memory) for storing the power relationship determined by the first microprocessor (combination of processor (26), and A/D converter (31)) during the calibration mode (col. 9, lines 28-35), the power relationship being used by the first microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device.

Regarding claim 4, Hawryluk shows in Fig. 3 that the light detector (19, i.e., energy sensor) is a power meter having a photo sensor for receiving the light emitted by the light emitting device, and the power meter outputs an analog signal corresponding to an intensity of the light received at the photo sensor (col. 6, lines 30-40).

Regarding claim 5, Hawryluk shows in Fig. 3 that the first microprocessor (combination of processor (26), and A/D converter (31)) is directly coupled to the power meter and includes an analog to digital converter (31, i.e., A/D converter) for converting the analog signal to a digital value (col. 6, lines 37-40).

Regarding claim 6, Hawryluk shows in Fig. 3 a signal calibration circuit (26, i.e., processor) coupled between the device under test and the power meter, the signal calibration circuit for receiving the analog signal outputted by the power meter and outputting the power indication having an inverse relationship (least squares fit) with the analog signal (col. 9, lines 30-33).

Regarding claim 10, Hawryluk shows in Fig. 3, the light detector (19, i.e., energy sensor) is a power meter having a photo sensor for receiving the light emitted by the

light emitting device, and the power meter outputs a digital value as the power indication (col. 6, lines 30-40).

Regarding claim 14, Hawryluk shows in Fig. 3-7, a method of light emitting device calibration, the method comprising: providing a device under test (11, i.e., radiant energy source) having a light emitting device to be calibrated and a first microprocessor (combination of A/D converter (31) and processor (26)); providing a light detector (19, energy sensor); controlling power of the light emitting device using the first microprocessor by changing values of a drive signal to the light emitting device (col. 9, lines 35-39); detecting light emitted by the light emitting device and generating a power indication corresponding to light emitted by the light emitting device using the light detector (col. 9, lines 6-8); receiving the power indication using the first microprocessor (col. 6, lines 41-44); and determining a power relationship relating values of the drive signal to powers of the light emitting device using the first microprocessor according power to the indication for a plurality of values of the drive signal (col. 6, lines 41-44).

Regarding claim 15, Hawryluk shows in Fig. 4, a method comprising storing the power relationship determined by the first microprocessor (combination of A/D converter (31) and processor (26)) in a non-volatile memory (27, i.e., memory); and during normal operations, controlling values of the drive signal using the first microprocessor to control the power the light emitting device according to the power relationship (col. 9, lines 25-31).

Regarding claim 16, Hawryluk shows in Fig. 3 a method wherein the light detector (19, i.e., energy sensor) is a power meter having a photo sensor for receiving

the light emitted by the light emitting device (col. 6, lines 30-32), and the method further includes outputting an analog signal from the power meter corresponding to an intensity of the light received at the photo sensor (col. 6, lines 36-38).

Regarding claim 17, Hawryluk shows in Fig. 3 a method comprising directly coupling the first microprocessor (combination of processor (26), and A/D converter (31)) to the power meter (19, i.e., energy sensor), and performing an analog to digital conversion within the first microprocessor for converting the analog signal to a digital value (col. 6, lines 30-40).

Regarding claim 18, Hawryluk shows in Fig. 3 a method comprising coupling a signal calibration circuit (27, i.e., processor) between the device under test and the light detector, receiving the analog signal outputted by the power meter at the signal calibration circuit, and outputting the power indication having an inverse relationship with the analog signal (col. 9, lines 30-33).

Regarding claim 20, Hawryluk shows in Fig. 3 a method comprising coupling a second microprocessor (combination of A/D converter (21) and processor (26)) between the device under test (11, i.e., radiant energy source) and the light detector (19, i.e., energy sensor), performing an analog to digital conversion within the second microprocessor for converting the analog signal (20, i.e., sensor signal) outputted by the power meter (19, i.e., energy sensor) to a digital value corresponding to the analog signal, and output the power indication corresponding to the digital value from the second microprocessor to the first microprocessor (col. 7, lines 31-40 and col. 10, lines 8-13).

Regarding claim 21, Hawryluk shows in Fig. 3 and 6 a method wherein the light detector (19, i.e., energy sensor) is a power meter having a photo sensor, and the method further comprises receiving the light emitted by the light emitting device at the photo sensor and outputting a digital value as the power indication (col. 6, lines 41-44).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1,4,6,13-14 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki (Publication No. U.S. 20040079864 A1).

Regarding claim 1, Suzuki shows in Fig. 1 a light emitting device calibration system comprising: a device under test (combination of LD (3), and driver (13)) to be calibrated; and a first microprocessor (12, i.e., efficiency calculation section, paragraph 0059, lines 1-6) electrically coupled to the light emitting device for determining a calibration mode controlling power of the light emitting device by changing values of a drive signal to the light emitting device (paragraph 0044, lines 1-17), receiving a power indication corresponding to light emitted by the light emitting device (paragraph 0028, lines 10-15), and determining a power relationship relating values of the drive signal to powers of the light emitting device according to a power indication for each of a plurality of values of the drive signal (paragraph 0037, lines 8-16); and a light detector (PD4, i.e.,

photodetector) coupled to the device under test (combination of LD (3), and driver (13)) for detecting the light emitted by the light emitting device to generate the power indication corresponding to the light emitted by the light emitting device (paragraph 0028, lines 10-15).

Regarding claims 4 and 6, Suzuki a) shows in Fig. that the light detector (PD4, i.e., photodetector) is a power meter having a photo sensor for receiving the light emitted by the light emitting device, and the power meter outputs an analog signal corresponding to an intensity of the light received at the photo sensor; and b) discloses that a signal calibration circuit (combination of first SEL (8), second SEL (11), amplification circuit (10), and efficiency calculation section (12)) coupled between the device under test (combination of LD (3), and driver (13)) and the power meter, the signal calibration circuit for receiving the analog signal outputted by the power meter and outputting the power indication having an inverse relationship (Performance = (*P2 - P1*)/(*IP2 - IP1*) or *IP3 = IP1* + (*P3 - IP1*)/ Performance) with the analog signal (paragraph 0052, lines 1-11).

Regarding claims 13 and 22, Suzuki discloses that the device under test (combination of LD (3), and driver (13)) is an optical disc drive and the light emitting device is a laser diode (Fig. 1, and paragraph 0001, line 2).

Regarding claim 14, Suzuki shows in Fig. 1 a method of light emitting device calibration, the method comprising: providing a device under test (combination of LD (3), and driver (13)) having a light emitting device (LD 3, i.e., laser diode) to be calibrated and a first microprocessor (12, i.e., efficiency calculation section, paragraph

0059, lines 1-6); providing a light detector (PD4, i.e., photodetector); controlling power of the light emitting device (LD 3, i.e., laser diode) using the first microprocessor (12, i.e., efficiency calculation section, paragraph 0059, lines 1-6) by changing values of a drive signal to the light emitting device (paragraph 0044, lines 1-17); detecting light emitted by the light emitting device and generating a power indication corresponding to light emitted by the light emitting device using the light detector (paragraph 0028, lines 10-15); receiving the power indication using the first microprocessor (12, i.e., efficiency calculation section, paragraph 0059, lines 1-6) (paragraph 0028, lines 10-15); and determining a power relationship relating values of the drive signal to powers of the light emitting device using the first microprocessor according power to the indication for a plurality of values of the drive signal (paragraph 0037, lines 8-16).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Publication No. U.S. 20040079864 A1) in view of Sasaki (U.S. Patent No. 5,040,163).

Regarding claims 7 and 19, Suzuki discloses the claimed invention as stated above. Suzuki does not disclose an operational amplifier having an inverting terminal, a

non-inverting terminal, and an output terminal, wherein the output terminal is for outputting the power indication; a voltage reference source of a predetermined voltage value coupled to the non-inverting terminal; a first resistor having a first end coupled to the analog signal outputted by the power meter, and a second end coupled to the inverting terminal, and a second resistor having a first end coupled to the inverting terminal, and a second end coupled to the output terminal. Sasaki shows in Fig. 2, a laser beam control circuit comprising: an operational amplifier (19) having an inverting terminal, a non-inverting terminal, and an output terminal, wherein the output terminal is for outputting the power indication; a voltage reference source (13, terminal) of a predetermined voltage value coupled to the non-inverting terminal; a first resistor (VR_1) having a first end coupled to the analog signal outputted by the power meter, and a second end coupled to the inverting terminal, and a second resistor (connected across amplifier (19) having a first end coupled to the inverting terminal, and a second end coupled to the output terminal. It would have been obvious to one skilled in the art to provide the laser beam control circuit of Sasaki to the device of Suzuki for the purpose of providing additional stability to the laser diode.

7. Claims 8-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hawryluk (U.S. Patent No. 6,303,917 B1) in view of Kawakami (Publication No. U.S. 2003/0235126 A1).

Regarding claims 8-9 and 11-12, Hawryluk discloses the claimed invention as stated above. In addition, Hawryluk shows in Fig. 3 a second microprocessor (combination of processor (26), and A/D converter (31)) coupled between the device

under test (11, i.e., radiant energy source) and the power meter (29, i.e., energy sensor), wherein the second microprocessor includes an analog to digital converter (31) for converting the analog signal outputted by the power meter to a digital value corresponding to the analog signal and outputs the power indication corresponding to the digital value (col. 8, lines 61-67). Hawryluk does not disclose that the first microprocessor includes a digital interface complying with a transmission standard and that the power indication complies with the transmission standard. Kawakami shows in Fig. 16 a digital interface (combination of usb hub (7) and usb interface (6 or 8)) complying with a transmission standard and that the power indication of Hawryluk would comply with the transmission standard if digital interface of Kawakami were adopted. It would have been obvious to one skilled in the art to provide the digital interface of Kawakami to the device of Hawryluk for the purpose of providing a safe means for data transfer and retreival.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zalewski (U.S. Patent No. 5,340,974) discloses a polychromatic source calibration by one or more spectrally filtered photodetector currents.

Mahoney (U.S. Patent No. 5,753,903) discloses a method and system for controlling light intensity in a machine vision system.

9. Call (U.S. Patent No. 5,640,381) disclosed in the information disclosure statement reads on claims 1-2, 4-5, 10, 13-17, and 21-22.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Wyatt whose telephone number is (571)-272-5974. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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